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Engineering Note

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Project: Layer 0 1% Test Stand Power Supply
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Subject: Operational Procedures for Layer 0 Wiener Power Supply

Introduction
A Wiener PL500 is used to provide isolated low voltage power to the SMT Layer 0 system. Specifically, the power supply provides a bulk source for the SVX4 bias voltage (located on the hybrid) and power for the isolation driver (2.5V) on the new 4 channel Adapter Card. This document describes how to operate the supply at the 1% Layer 0 test stand at Si Det.

The PL500 Wiener Power Supply has two modes of operation, local and remote. Remote operation can be achieved either via the RS232 or USB port. See Dave Huffman's Engineering Note H20030731 for instructions on how to install the software for both ports. The document is attached to this note for reference.

REMOTE operation:

For remote operation, the CANBUS ADDR, GENERAL CALL, and SPEED, via the front panel of the power supply, should be confirmed. To do this, toggle the LOCAL momentary switch, in the up direction. The associated LED will illuminate, indicating LOCAL mode. To access the addressing field, turn the supply ON by pushing the momentary ON/OFF button up. The ON/OFF and STATUS LEDs will illuminate. The digital display should show the output voltage and current of U0. The MODE select button is a momentary switch used to scroll through the available fields, which are:

1. All power supplies, U0-U5 and U7.

   The power supply sub-module name, voltage output, and current draw are displayed.

2. Power in watts.

   Displays the total output power of the supply

3. CANBUS ADDR.

   Displays the crate address and USB port disable option.

4. GENERAL CALL

   Displays the total number of crates on the CAN bus. There are 127 devices available and an OFF option. This can be set to any number between 1 and 127, typically 127.

5. SPEED

   Indicates the bit transfer rate. For short distances, 1MBaud is used. The range available is 5K to 1.6M.

6. FANS OFF

   Indicates internal power supply cooling fan status.

7. Fan Time

   Displays how long the power supply fans have been running.

8. Ps Time

   Displays how long the power supply has been on.

If the MODE select button is continuously pushed up the above fields will be displayed, automatically incrementing. Go to the CANBUS ADDR field. This number indicates the Crate Address, for use by the software. The ADDR switch can toggle up or down. Between 127 and 1, the USB port disable option is displayed. Toggle the ADDR switch until a '1' appears. Next, toggle the MODE button until the SPEED field is displayed. This should be set to 1MBaud. Confirm that the USB port cable is connected from the left most 9-pin D connector located on the back panel of the supply to the USB port on the computer, via the CAN to USB dongle. Push the ON/OFF button to turn the supply off. Toggle the LOCAL momentary switch down to put the supply in REMOTE mode. Remote mode is indicated when the associated LED is off.

Under Programs, on the PC, launch the application WinCRM_USB. This opens a window that displays the Host Computer and the power supply crate. If the crate isn't displayed, go to the CAN-Bus Interface pull down window, select Configuration, Bit Rate, and confirm the rate is 1MBaud. Then go to the Crate Control window and select Set Crate Number. This field defaults at 0 by the software. Set this to 1 and click ok. The crate should now appear.

Selecting Crate Control pull down menu, Display Crate, can monitor the crate output. Crate Control, Switch ON and Switch OFF, turns the supply on and off. Also under Crate Control, selecting Group Power ON and Group Power OFF controls all supplies on the bus.

Output Voltage (Unom), Current Limit (Ilim), UnderVoltage (Umin), and OverVoltage (Umax) limits are adjustable via the software or front panel. Over Voltage Protection (OVP) and Maximum Current (Imax) can be set either through the RS232 port or from the front panel on the supply but not the USB. The currently available software doesn't accommodate this feature.

To access Output Voltage (Unom), Current Limit (Ilim), UnderVoltage (Umin), and OverVoltage (Umax) limits via the software:

1. From Crate Control pull down menu, select Power Supply Config. This form can be used to read and write to the PS. Select the parameter to be changed, the voltage channel, and adjust the value in the Value window. Clicking on WRITE sets the value. READ can be used to check that it was changed.

LOCAL Control

To access limit fields from the front panel:

1. Push up and hold the LOCAL momentary switch until the associated LED illuminates. This puts the supply in LOCAL mode.
2. Push the MODE SELECT and ON/OFF switches up, simultaneously, until the digital display shows CONFIG:READY.
3. Toggle through the available fields (U0-U5, U7) by pushing the MODE SELECT momentary switch up or down.The power supply fields display voltage and current.
4. To access the parameter menu, associated with each power supply, toggle the ON/OFF switch up.
5. To select the parameter to be changed, toggle the MODE switch up.
6. Toggle the ON/OFF momentary switch up to access the parameter. This is indicated by the flashing display.
7. Toggle up or down the MODE/SELECT button to change the parameter value.
8. When the correct value is displayed, toggle the ON/OFF button down until the parameter stops flashing.
9. Select other limits by toggling up or down the MODE SELECT switch.
10. Toggle down the ON/OFF switch to return to the first menu. Use the MODE SELECT to select other supplies.
11. After configuring all supplies, chosen by the MODE SELECT, toggle the ON/OFF switch down to leave configuration mode.

To turn the supply on, toggle the LOCAL switch up until the LED illuminates and then toggle the ON/OFF switch up.

If any other problems arise, contact L. Bagby (3100) or J. Foglesong (2739).